

TRIP REPORT
TRANSPORTATION CORRIDOR EVALUATION
PRIVATE FUEL STORAGE
PRIVATE FUEL STORAGE LLC

JO NO. 05996.01
Jb Bk T1.3

Trip to the PFSF site and transportation
corridor in Tooele County, Utah
February 23 & 24, 1997

Present for:

Stone & Webster
Engineering Corp
(SWEC)

S. Macie
W. French
D. Hayes
S. Davis *

Private Fuel Storage,
LLC (PFSLLC)

J. Parkyn *
C. Minott *

* Part-time

PURPOSE

The purpose of the walkdown was to evaluate the 25 mile transportation corridor between the mainline railroad at Timpie and the PFSF. The evaluation was to consider two alternate methods of spent fuel transportation (i. e. road or rail) for technical feasibility and identify any anticipated problems or potential impacts from widening the existing road for heavy haul or constructing a new rail spur adjacent to the existing road.

The walkdown was also to perform a cursory environmental review of the transportation corridor to review and document existing conditions and assess environmental impacts from corridor construction and use.

DISCUSSION

1. General

S. Macie (PE), W. French (Civil Eng.), and D. Hayes (Railroad Spclst.) performed a walkdown of the intermodal point and 25-mile transportation corridor on 2/23/97. Measurements were taken of the Interstate I-80 bridges, intermodal railroad tracks, road pavement widths, right-of-way widths along the Skull Valley road (assuming fences adjacent to road are located on the r.o.w.), road drainage culvert locations and diameters, etc.

A second walkdown was performed on 2/24/97 and included S. Macie, W. French, D. Hayes, and S. Davis (Environmental) to review the intermodal point, transportation corridor, and visit the PFSF site. They were joined by J. Parkyn and C. Minott.

2. Cask Transportation by heavy haul via a widened Skull Valley Road

Cask transportation by heavy haul via a widened Skull Valley Road is physically feasible. However, the following issues must be considered:

- **Intermodal land lease agreement** - An lease agreement must be obtained from the railroad to allow construction of a rail siding and intermodal transfer building (approx. 70' x 100' x 35' high) to the existing off-loading and maintenance area just south of the mainline at Timpie. Rail siding details are subject to railroad approval. Building permit required.
- **Existing I-80 bridge clearance** - The existing bridges (2) under Interstate I-80 are posted with a vertical clearance of 15'-8". The clear horizontal distance between concrete columns is 51'. The transportation cask and skid package has a 12'-0" diameter. A heavy haul tractor trailer conceptual design must be established to determine the maximum height, width, and turning radius to confirm adequate clearance. Maximum wheel loads are also required to design the pavement in the yard and beneath the bridges. Nonetheless, the existing bridges should be able to accommodate a "low boy" trailer.
- **Skull Valley road improvements** - The existing road is a two lane bituminous paved road. Each lanes is 11 to 12 feet wide. Road shoulders vary from 1 to 3 feet paved shoulders at most to almost no shoulders at least. Drainage ditches are located on both sides of the road varying considerably in size. The existing road is relatively level throughout its 25-mile length, maximum grade is approximately four percent. The road appears to be in fairly good condition. Maintenance (sealing cracks) was being performed on 2/24/97 by Tooele county road crews. The design and/or strength of the existing road is not known, but since the road was originally a state highway and based on its good condition in spite of the tractor-trailer traffic, it is assumed that it was designed for standard AASHTO HS-20 highway loading. The road will require widening to provide two 12 foot lanes with 3 foot paved shoulders (for a total heavy haul lane of 15 feet) and 5 foot compacted gravel shoulders. Road turnouts every 5 miles, on alternating sides of the road, may also be desirable. The existing road will need to be evaluated further (i.e. core evaluation) if the AASHTO HS-20 loading cannot be confirmed by design records. Drainage ditches on both sides of the road will require rework. Existing drainage culverts under the road will need to be evaluated for both flow design capacity and wheel loadings. At a minimum, culverts must be extended at both ends to facilitate road widening. An existing aqueduct (size and depth unknown) which crosses beneath the road approximately 6 miles south of Timpie will require investigation to verify structural load capacity. Underground utilities along both sides of the road may require relocation and/or improvements, particularly at the three ranches located close to the road. Approximately 42 side road connections and driveways will require regrading and resurfacing to match the improved road. Future road maintenance will need to be considered since any major road repairs or maintenance will probably be attributed to the cask shipments. Road maintenance work can be scheduled to avoid interferences with cask shipments, but should be considered
- **Skull Valley road right-of-way** - Road widening will effect the ranches and ranch buildings located along the existing road. A detailed review of ownership along the entire corridor and right-of-way survey should be performed as soon as possible.

- **Environmental** - The Horseshoe Springs Wildlife Management Area is a wetland/riparian area that has been designated an Area of Critical Environmental Concern (ACEC) by BLM. It is located on the west side of Skull Valley road approximately 9.5 miles south of Timpie. There is a fenced visitor area surrounding the springs approximately 1000 feet to the west of the road. The Horseshoe Knolls lookout and campground is located on the east side of the road. Road widening plans should be discussed with the BLM since it is possible an exemption to their wetland setback distance (1200 feet) will be necessary.

The proposed Intermodal Point is adjacent to the state-owned Timpie Springs Waterfowl Area. Construction in this area could be subject to seasonal restrictions and protection measures due to the presence of endangered and sensitive species.

Additional environmental issues to be considered are the proximity of road construction/widening to other springs and raptor nests. There are a series of springs located within a few hundred feet to the west of the Skull Valley Road, approximately 14 miles south of Timpie. The road will need to be aligned to avoid construction through this area.

According to the BLM, some of the trees located along the road (primarily at ranch sites) contain raptor nests. Many raptors are sensitive species and are afforded some level of protection by the Endangered Species Act, Migratory Bird Act, Bald and Golden Eagle Protection Act, and/or BLM restrictions (no construction within 0.5 miles of an active raptor nest between March 1 and July 15). These nests will have to be located and protection measures developed in consultation with federal and state agencies.

3. Cask Transportation by rail via a new rail spur adjacent to Skull Valley Road

Cask transportation by rail via a new rail spur adjacent to Skull Valley Road is physically feasible. However, the following issues must be considered:

- **Rail spur** - Approval from the railroad is required to construct a new rail turnout at Timpie. The area already has two parallel sidings and is used for offloading and maintenance. Rail spur details are subject to state and railroad approval.
- **Existing I-80 bridge clearance** - The existing bridges (2) under Interstate I-80 are posted with a vertical clearance of 15'-8". The clear horizontal distance between concrete columns is 51'. The transportation cask and skid package has a 12' diameter. A locomotive and deep well car conceptual design must be established to determine the maximum height, width, and turning radius to confirm adequate clearance. A variance on vertical clearance height requirements (Union-Pacific requires 22'-0" and AREA requires 22'-6" for Utah) must be obtained or the bridges must be raised. The road surface beneath the bridges may be lowered by 1' to 2', but will be limited by the siding rail elevation so a reasonable slope is provided for the turning track. Lowering the road beneath the bridges will need to accommodate drainage to avoid water collection. State approval will be required to modify the road beneath the bridges to verify there is no impact on the bridge foundations. The state will also need to approve the construction of a railroad constructed in the roadway at Interstate 80 (ref: Utah State Statute 56-1-8).
- **New rail line adjacent to Skull Valley road** - The new rail line would be located adjacent to the existing road and within the existing road right-of-way. The rail would be located as close to the road as reasonable. Cut and fill earthwork will be required to establish the rail roadbed, even though the existing road is relatively level throughout its 25-mile length. The existing drainage ditch along the road on the side of the new track will need to be relocated. Existing culverts under the road will need to be extended beneath the tracks and a second culvert added nearby to account for capacity restrictions due to longer length. In addition, relocation and/or improvements of underground utilities along the road and overhead utilities crossing the road will likely be required at the 3 ranch locations at a minimum. An existing aqueduct (size and depth unknown) which crosses beneath the road approximately 6 miles south of Timpie will require investigation with respect to rail loadings. Approximately 13 locations of side road connections and driveways will require regrading and resurfacing to cross the tracks. Separation or other remedial measures will be needed where side roads and driveways are west of Skull Valley road. There is a potential for relocation of five miles of overhead power lines just south of Interstate 80. Future railroad maintenance will be minimal and not considered disruptive to cask shipments.
- **Skull Valley road right-of-way** - The new rail adjacent to Skull Valley road will effect the ranches and 3 sets of ranch buildings located along the existing road. A detailed review of ownership along the entire corridor and right-of-way survey should be performed as soon as possible. There is a possibility the existing road may require rebuilding to fit both the road and railroad within the right-of-way.

- **Environmental** - The Horseshoe Springs Wildlife Management Area is a wetland/riparian area that has been designated an Area of Critical Environmental Concern (ACEC) by BLM. It is located on the west side of Skull Valley road approximately 9.5 miles south of Timpie. There is a fenced visitor area surrounding the springs approximately 1000 feet to the west of the road. The Horseshoe Knolls lookout and campground is located on the east side of the road. Railroad plans should be discussed with the BLM since it is possible an exception to their wetland setback distance (1200 feet) will be necessary.

The railroad route is adjacent to the state-owned Timpie Springs Waterfowl Area. Any construction in the area could be subject to seasonal restrictions and protection measures due to the presence of endangered and sensitive species.

Additional environmental issues to be considered are the proximity of the railroad corridor to other springs and raptor nests. There are a series of springs located within a few hundred feet to the west of the Skull Valley Road, approximately 14 miles south of Timpie. The railroad will need to be aligned to avoid construction through this area.

According to the BLM, some of the trees located along the road (primarily at ranch sites) contain raptor nests. Many raptors are sensitive species and are afforded some level of protection by the Endangered Species Act, Migratory Bird Act, Bald and Golden Eagle Protection Act, and/or BLM restrictions (no construction within 0.5 miles of an active raptor nest between March 1 and July 15). These nests will have to be located and protection measures developed in consultation with federal and state agencies.

4. Summary

In summary, either means of cask transportation from Timpie to the Skull Valley Goshute Indian reservation is technically feasible (constructable using widely accepted design guidance and criteria) via heavy haul road improvements and physically feasible (constructable but needing variances from widely accepted design guidance and criteria) via railroad spur. However, either method will require resolving the issues of state and railroad approvals, highway I-80 bridge clearance, Horseshoe Springs Wildlife Management Area, Timpie Springs Waterfowl Management Area, proximity to springs and raptor nests, and land owners/right-of-way along the 25-mile corridor.

STONE & WEBSTER ENGINEERING CORPORATION
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DATE	3/10/97
J. O. NO.	05996.01
P. O. NO.	
LTR. NO.	S-M-198
REF.	T1.3

TO **Mr. Scott Northard**
Project Manager
Northern States Power Company
414 Nicollet Mall, RS 7
Minneapolis, MN 55401

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TRIP REPORT
PRIVATE FUEL STORAGE FACILITY

Enclosed is one (1) copy of the Trip Report from the field walk-down of the PFSF transportation corridor on February 23 and 24, 1997.

If you have any questions, call me at (303) 741-7009

John L. Donnell

J. L. Donnell
Project Manager

Enclosures

cc: J. Parkyn-1/1

JLD:SMM:smr

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